

WHAT IS CLAIMED IS:

1. An air conditioner for a vehicle comprising:
 - an electric compressor;
 - a target rotation speed calculating means that calculates a target rotation speed of the electric compressor;
 - a noise level detecting means that detects a noise level of the vehicle;
 - an upper limit setting means that sets an upper limit of a rotation speed of the compressor to a predetermined value when the detected noise level is lower than a predetermined noise level; and
 - a compressor rotation speed control means for controlling a rotation speed of the compressor based on one of the calculated target rotation speed and the upper limit of the rotation speed, whichever is lower,

wherein when the target rotation speed is higher than the upper limit and the detected noise level is reduced from a level that is equal to or higher than the predetermined level to a level that is lower than the predetermined level, the compressor rotation speed control means controls the electric compressor to stop for a predetermined period of time and subsequently increase rotation speed to the upper limit.
2. The air conditioner according to claim 1, wherein the noise level detecting means determines that the noise level is lower than the predetermined noise level when a vehicle speed is lower than a predetermined speed.

3. The air conditioner according to claim 1, further comprising an air-blowing device for blowing air into a passenger compartment of the vehicle,

wherein the noise level detecting means determines that the noise level is lower than the predetermined noise level when a volume of air blown by the air-blowing device is lower than a predetermined volume.

4. The air conditioner according to claim 1, further comprising a first line that electrically connects the target rotation speed calculating means and the compressor rotation speed control means,

wherein the compressor rotation speed control means receives an operation instruction signal that instruct to enable and disable operation of the compressor rotation speed control means through the first line,

wherein the operation of the compressor is stopped for the predetermined period of time by disabling the operation of the compressor rotation speed control means for a predetermined period of time by the operation instruction signal.

5. The air conditioner according to claim 1, further comprising a second line that electrically connects the target rotation speed calculating means and the compressor rotation speed control means,

wherein the compressor rotation speed control means

receives a rotation speed indicating signal that indicates the target rotation speed through the second line,

wherein the rotation of the compressor is stopped for the predetermined period of time by indicating that the target rotation speed is zero for a predetermined period of time by the rotation speed indicating signal.

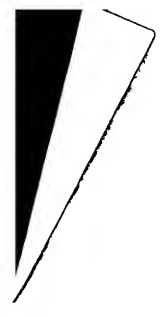
6. The air conditioner according to claim 1, further comprising a battery mounted on the vehicle, wherein the battery provides electric power to the electric compressor.

7. The air conditioner according to claim 2, further comprising a first line that electrically connects the target rotation speed calculating means and the compressor rotation speed control means,

wherein the compressor rotation speed control means receives an operation instruction signal that enables and disables operation of the compressor rotation speed control means through the first line,

wherein the operation of the compressor is stopped for the predetermined period of time by disabling the operation of the compressor rotation speed control means for a predetermined period of time by the operation instruction signal.

8. The air conditioner according to claim 3, further comprising a first line that electrically connects the target



rotation speed calculating means and the compressor rotation speed control means,

wherein the compressor rotation speed control means receives an operation instruction signal that enables and disables operation of the compressor rotation speed control means through the first line,

wherein the operation of the compressor is stopped for the predetermined period of time by disabling the operation of the compressor rotation speed control means for a predetermined period of time by the operation instruction signal.

9. The air conditioner according to claim 2, further comprising a second line that electrically connects the target rotation speed calculating means and the compressor rotation speed control means,

wherein the compressor rotation speed control means receives a rotation speed indicating signal that indicates the target rotation speed through the second line,

wherein the rotation of the compressor is stopped for the predetermined period of time by indicating that the target rotation speed is zero for a predetermined period of time by the rotation speed indicating signal.

10. The air conditioner according to claim 3, further comprising a second line that electrically connects the target rotation speed calculating means and the compressor rotation

speed control means,

wherein the compressor rotation speed control means receives a rotation speed indicating signal that indicates the target rotation speed through the second line,

wherein the rotation of the compressor is stopped for the predetermined period of time by indicating that the target rotation speed is zero for a predetermined period of time by the rotation speed indicating signal.